

From the  
INTERNATIONAL SEARCHING AUTHORITY

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To:

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/003560

International filing date (day/month/year)  
19.08.2004

Priority date (day/month/year)  
20.08.2003

International Patent Classification (IPC) or both national classification and IPC  
G06F1/00

Applicant  
MACROVISION EUROPE LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
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**Box No. IV Lack of unity of invention**

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1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
  - ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-15,62

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-3,7-13,62
Inventive step (IS)	Yes: Claims	4,5,6,14,15
	No: Claims	1-15,62
Industrial applicability (IA)	Yes: Claims	1-15,62
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item III**

This Authority considers that there are three inventions covered by the claims indicated as follows:

- I: Claims 1-15, 62 directed to providing a plurality of alternatives of producing an obfuscated variable
- II: Claims 16-45, 63-65 directed to creating a secure storage medium
- II: Claims 46-61, 66 directed to controlling the functionality of a processor

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

The prior art has been identified as WO 99/01815 (D1). This document shows a method of producing an obfuscated object code (see page 3, lines 11-15), the method comprising the step of substituting a variable in a source code with a selected function of the variable (see the encoding function of §7.1.1; the function "f" of §7.1.3), the selected function causing the variable to be presented in the compiled object code as a series of operations (see page 56, line 23 - page 57, line 30; page 59, line 17 - page 61, line 2). Additionally, in the same embodiments, D1 discloses said operations as a series of arithmetic, logical and/or complementary operations, the series arranged, upon running of the object code, to provide the variable, thus anticipating the subject-matter of dependent claims 2 and 3.

From the comparison between D1 and the 1st invention (see claim 4) the following technical feature can be seen to make a contribution over this prior art (in the sense of PCT rule 13.2):

- the selected function is defined in a template of the source code (Special Technical Feature 1, STF1).

From this STF1 the objective problem OP1 to be solved can be summarized as:

- providing a plurality of alternatives of producing an obfuscated variable

From the comparison between D1 and the 2nd invention (see claim 16) the following features can be seen to make a contribution over the same prior art:

- producing storage media having a secured executable program thereon, comprising the step of securing an executable program by associating the executable program with a

security program which is arranged to control access to the executable program and applying the secured executable program to the storage media (STF2).

From these STF2 the objective problem OP2 to be solved can be summarized as:

- method of controlling the functionality of a virtual processor

From the comparison between D1 and the 3rd invention (see claim 46) the following features can be seen to make a contribution over the same prior art:

- controlling a processor to run a program, comprising the steps of translating the instruction from the program into a reduced set of instruction set format to which the program is not responding; causing the translated instructions to be applied to a responsive virtual processor; causing the virtual processor to run the instructions and to apply a series of simple instructions, to which the processor is responsive, to the processor (STF3).

From these STF3 the objective problem OP3 to be solved can be summarized as:

- controlling the functionality of a processor

A comparison of the problems OP1 with OP2 and OP3, all seen in the light of the description and the drawings of the present application, indicates that there is no technical correspondence between these problems nor do they show any corresponding technical effect.

The same conclusion is reached when problems OP2 and OP3 are compared to each of the others.

As a result, inventions 1 to 3 fail to demonstrate a single general inventive concept as required by PCT rule 13.1.

#### **Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: WO 99/01815 A (COLLBERG CHRISTIAN SVEN ; LOW DOUGLAS WAI KOK (NZ); THOMBORSON CLARK D) 14 January 1999 (1999-01-14)

D2: "What's wrong with C++ templates?" [Online] 28 May 2003 (2003-05-28), XP002316839 Retrieved from the Internet: URL:<http://www.kuro5hin.org/story/2003/5/26/22429/7674>> [retrieved on 2005-02-07]

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claims 1, 10 and 62 is not new in the sense of Article 33(2) PCT.

The document D1 discloses (the references in parentheses applying to this document): a method of producing an obfuscated object code (see page 3, lines 11-15), the method comprising the step of substituting a variable in a source code with a selected function of the variable (see the encoding function of §7.1.1; the function "f" of §7.1.3), the selected function causing the variable to be presented in the compiled object code as a series of operations (see page 56, line 23 - page 57, line 30; page 59, line 17 - page 61, line 2). Thus, the subject-matter of claim 1 is not new.

The same reasoning applies to independent claims 10 and 62, which are therefore not new.

The same reasoning applies, mutatis mutandis, to the subject-matter of the other independent claims 10 and 62, which therefore are also considered not new.

Dependent claims 2-9 and 11-15 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty or inventive step, see documents D1 and D2 and the corresponding passages cited in the search report. In particular, C++ programming language and its templates are commonly used by programmers to make decisions or perform calculations during compilation, as shown in D2. The substitution of the variable in source code with a template defining a plurality of functions is merely a matter of design choice and does not introduce any technical contribution over the cited prior art.